

IN THE CLAIMS:

This Listing of Claims replaces all prior Listings and versions of claims in the above-identified application.

Listing of Claims:

1. (Cancelled)
2. (Currently Amended) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase, wherein said dicamba-degrading oxygenase is selected from the group consisting of:
 - a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and
 - b) a fragment of SEQ ID NO:4 that comprises an iron-sulfur cluster and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA), and
 - c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4, which wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺ and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).
3. (Previously Presented) An isolated DNA molecule comprising a nucleotide sequence of SEQ ID NO:3.
4. (Cancelled)
5. (Currently Amended) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase operatively linked to expression control sequences, wherein said dicamba-degrading oxygenase is selected from the group consisting of:
 - a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and
 - b) a fragment of SEQ ID NO:4 that comprises an iron-sulfur cluster and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA), and
 - c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4, which

wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

6. (Previously Presented) A DNA construct comprising a nucleotide sequence of SEQ ID NO:3 operatively linked to expression control sequences.

7. (Previously Presented) The DNA construct of Claim 5 which is a vector.

8-20. (Cancelled)

21. (Currently Amended) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and

b) a fragment of SEQ ID NO:4 that comprises an iron-sulfur cluster and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and

c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4, which wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

22. (Previously Presented) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4, said DNA being operatively linked to expression control sequences.

23. (Original) The transgenic host cell of Claim 22 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

24. (Previously Presented) The transgenic host cell of any one of Claims 21, 22 or 58 which is a plant cell.

25-35. (Cancelled)

36. (Currently Amended) A transgenic plant or part of a said transgenic plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase, said DNA being operatively linked to expression control sequences;

wherein said dicamba-degrading oxygenase is selected from the group consisting of:

a) a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4; and

b) a fragment of SEQ ID NO:4 that comprises an iron-sulfur cluster and catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA); and

c) a dicamba-degrading oxygenase having an amino acid sequence which is at least about 65% identical to the amino acid sequence of SEQ ID NO:4, which wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

37. (Previously Presented) A transgenic plant or part of a said transgenic plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

38. (Previously Presented) The transgenic plant or plant part of Claim 37 wherein the DNA comprises the nucleotide sequence of SEQ ID NO:3.

39. (Previously Presented) The transgenic plant or plant part of Claim 36 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.

40-43. (Cancelled)

44. (Currently Amended) A method of controlling weeds in a field containing a transgenic plant according to any one of Claims 36, 37, or 62 or 63, comprising applying an amount of dicamba to the field effective to control the weeds in the field.

45-46. (Cancelled)

47. (Currently Amended) A method of selecting transformed plant cells comprising:

providing a population of plant cells;
transforming at least some of the plant cells in the population of plant cells with the DNA construct according to any one of Claims 4, 5, 6, 56 or 57; and
selecting the transformed plant cells by culturing the resulting population of plant cells in a culture medium containing dicamba at a concentration selected so that transformed plant cells proliferate and untransformed plant cells do not proliferate.

48. (Currently Amended) A method of selecting transformed plants comprising:
providing a population of plants which comprises one or more plants comprising the DNA construct according to any one of Claims 4, 5, 6, 56 or 57; and
selecting transformed plants by applying an amount of dicamba to the population of plants selected so that transformed plants grow, and growth of untransformed plants is inhibited.

49. (Cancelled)

50. (Currently Amended) The DNA molecule of Claim ~~4~~ 2 comprising a DNA sequence encoding a *Pseudomonas* dicamba-degrading oxygenase.

51. (Currently Amended) The DNA molecule of Claim ~~4~~ 2 comprising a DNA sequence encoding a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

52. (Currently Amended) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4, wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorosalicylic acid (DCSA).

53. (Previously Presented) An isolated DNA molecule comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

54. (Currently Amended) The DNA construct of Claim ~~4~~ 5 comprising a wherein the DNA sequence encoding encodes a *Pseudomonas* dicamba-degrading oxygenase.

55. (Currently Amended) The DNA construct of Claim 4 5 comprising a wherein the DNA sequence encoding encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

56. (Currently Amended) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4, wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA).

57. (Previously Presented) A DNA construct comprising a DNA sequence encoding a dicamba-degrading oxygenase having the amino acid sequence of SEQ ID NO:4.

58. (Currently Amended) A transgenic host cell comprising DNA encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4, wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA), said DNA being operatively linked to expression control sequences.

59. (Cancelled)

60. (Currently Amended) The transgenic host cell of Claim 59 21 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

61. (Currently Amended) The transgenic host cell of Claim 59 21 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

62. (Currently Amended) A transgenic plant or part of a-said transgenic plant comprising one or more cells comprising DNA encoding a dicamba-degrading oxygenase which is at least about 85% identical to the amino acid sequence of SEQ ID NO:4, wherein said oxygenase comprises an iron-sulfur cluster, wherein said oxygenase binds free Fe²⁺, and which wherein said oxygenase catalyzes the oxidation of dicamba to 3,6-dichlorsalicylic acid (DCSA), said DNA being operatively linked to expression control sequences.

63. (Cancelled)

64. (Currently Amended) The transgenic plant or plant part of Claim 63 36 wherein the DNA encodes a *Pseudomonas* dicamba-degrading oxygenase.

65. (Currently Amended) The transgenic plant or plant part of Claim 63 36 wherein the DNA encodes a *Pseudomonas maltophilia* dicamba-degrading oxygenase.

66. (Cancelled)

67. (Cancelled)

68. (Currently Amended) The isolated DNA molecule of Claim +2, wherein said dicamba-degrading oxygenase has a K_m for dicamba of about $10\mu M$ and has a V_{max} of approximately $100-110 \text{ nmol/min/mg}$.

69. (Cancelled)

70. (Cancelled)

71. (Cancelled)

72. (Previously Presented) The DNA construct of Claim 6 which is a vector.

73. (Previously Presented) The transgenic plant or plant part of Claim 37 wherein the plant is a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase and the plant part is a part of a broadleaf plant which is tolerant to dicamba as a result of the expression of the dicamba-degrading oxygenase.